COTS/ONR Work Group Plans

During the COTS/ONR Workshop held November 16-17, 2004, participants agreed to develop an Integrated Ocean Observing System (IOOS) product that demonstrates interoperability among regional COTS and ONR projects, the Regional Associations (RAs) and other data sources as appropriate. The goal agreed upon is a demonstration that fits within the framework of a regional now cast and, eventually, provides that kind of information for an interesting weekly story on the weather channel.

Working groups were identified during the workshop to concentrate on the key issues that need to be worked out to make this demonstration achievable and successful. The charge to the Work Groups is to define the key issues that must be resolved in their group topic area to develop a plan (in 30 days) for 6 and 12 month milestones that will enable an Interoperability II demonstration. The people who will be doing the work necessary for the demonstration will not necessarily be the same people in the initial working groups.

The following is a compilation of work plans from the six Working Groups identified during the COTS/ONR Workshop.

Working Groups Members *(group leader's name is underlined)*

Demonstration Goal Focus –
Antonio Baptista, Oregon H & S University
Philip Bogden, GoMOOS
Matt Howard, Texas A&M
Julie Thomas, Scripps
Sandy Bernard, SECOORA

Metadata –
Anne Ball, NOAA CSC
Julie Bosch, NCDDC
Rob Bochenek, Exxon Valdez Trustee
Dwayne Porter, Baruch Institute
Stephanie Watson, CeNCOOS
Steve Collins, NOAA NDBC

QA/QC –
Elena Zagrai, Stevens Institute of Technology
Don Conlee, NOAA/NDBC
Steve Gill, NOAA/CO-OPS
Julie Thomas, Scripps
Ed Kearns, UM

Data Assembly and Aggregation –
Dave Eslinger, NOAA CSC
Leslie Rosenfeld, Naval Postgraduate School
Annette Schloss, UNH
Vembu Subramanian, USF
Xiongping Zhang, Coastal Studies Institute
Eric Terrill, Scripps
Kevin Kern, NOAA NDBC

Common Interface –
Lynn Leonard, UNCW
Donna McCaskill, NOAA CSC
Charlton Purvis, University of South Carolina
Mike Durako, UNCW
Christine Manninen, Great Lakes Commission

Communication Facilitation –.
Jan Newton, University of Washington
Molly McCammon, AOOS
Janet Campbell, UNH
Doug Wilson, NOAA OAR
Joanne Bintz, SURA
Geno Olmi, NOAA CSC

COTS/ONR Nowcast Product Team
(Demonstration Goal Focus)

A. The charge for this group was to define a concept for an integrated nowcast product. The general objectives for the effort include:

- Providing a product that is Weather Channel worthy – oriented toward general public interest and use.
- Providing information in the context of useful applications.
- Displaying primary parameters nationally that all regions have in common.
- Providing regional demonstrations utilizing one or more of the primary parameters.
- Building on the framework of the initial interoperability demonstration if possible.
- Completing the product in a 6 to 12 month timeframe.

B. Concept recommendations include:

1. Develop an event-based product that displays observing data from the perspective of general public viewers who would be interested in coastal ocean conditions and episodic events. This includes education audiences.

2. Demonstrate capabilities on two levels – national and regional.

3. National level demonstration to include primary parameters that should be available in some form across the regions. The group recommends winds, waves, sea surface temperature, surface currents, and chlorophyll. The data should be served in an OCG compliant manner.

   To make the real-time data display relevant from a user viewing standpoint, it is recommended that the information be displayed in a manner that would incorporate geographic displays of official coastal advisories issued by the NWS. It is also recommended that, if possible, some basic climatology information be available to provide viewers with variability reference.

   In addition to linking to NWS coastal conditions advisories, it might be possible to include additional advisory links for HABs, Toxic Releases, Spills, or other "event-based" scenarios. The concept is not intended to generate forecasts, but to link forecast advisories from official sources to the real-time data.

   Finally, related to the national level concept, the group recommends that some type of search & rescue oriented interface be utilized that could demonstrate the use of the primary parameters in tracking and rescue operations. Several examples currently exist and should be investigated for incorporation into this demonstration. It would not be intended as an "official" search and rescue forecasting application but as a resource in demonstrating the value of integrated information.

4. Regional level demonstration to highlight the use of primary parameters (one or more) in combination with other regional data to address episodic event scenarios. The concept is for each region to identify a relevant coastal event theme to address in the demonstration. The goal is to address a wide range of themes and develop potential templates that could be used eventually by multiple regions. Some of the themes suggested include:

    a. Hurricanes in the Southeast (volunteered by SECOORA)
    b. Rip Currents in the Mid-Atlantic?
    c. Nor'easters or Spring Blooms (volunteered by GOMOOS)
    d. Ice Hazards in the Great Lakes?
    e. Coastal Storms in Alaska?
    f. Tsunamis in the Northwest (volunteered by NANOOS)
    g. Beach Closures in California (volunteered by SCCOOS)
    h. Oil Spills in the Gulf of Mexico (volunteered by GCOOS)

    The themes above are suggestions that need to be further explored and finalized. Regional themes should be intuitive and easily accessed from the opening page, and should include a mechanism that flags or emphasizes a region or regions with ongoing events of potential significance to the viewers. The interfaces for the regional themes will differ in functions but should be incorporated into a consistent look and feel.

5. The Regional themes should include case studies of past events and/or climatologies to provide context for the real-time data. The information should educate viewers about the data they are viewing and what it means related to the theme or event. This information will also provide excellent outreach and education opportunities.

6. Attached is a presentation containing storyboard slides to demonstrate the concept. It is expected that other workgroups will work further to identify themes, develop common interface templates, and address data availability and integration options.

C. Additional issues for consideration include:

1. New data layers can be added to the web site by facilitating publication to the OGC specifications. For programs that know about the OGC specs, or for those with pre-existing web mapping capabilities (e.g., ESRI shops with an ArcIMS server), publication of new data types is relatively easy. For those who aren't GIS/ESRI shops, SURA has developed "OGC Publisher" software that can facilitate the process.
2. While regional components of the demonstration may include model forecasting components in association with the real time data, the overall intention for this demonstration is to focus on nowcasts. Efforts should be made to ensure that liability issues are avoided.

3. Some thought should be given to long term operational expectations. Is this product purely for demonstration purposes or do we hope to make it operational in the future? If so, who will take it over and maintain it?

4. Possible timeline – to make this effort a reality in 12 months will require simultaneous efforts by a number of work groups. For planning purposes the following milestone objectives are proposed:

    1. First Quarter:
        - ⇒ Determine availability of data for national primary parameters.
        - ⇒ Identify new regional stories, similar to the hurricane retrospective that can be added quickly.
        - ⇒ Work with data providers to make their data available via OGC services
        - ⇒ Help partners develop and publish FGDC-compliant metadata records to the National Spatial Data Infrastructure (involves metadata group)
        - ⇒ Solicit input from other COTS/ONR partners on existing openioos demos.
        - ⇒ Identify and coordinate linkages with official advisory providers.
        - ⇒ Identify and begin development of regional themes.
        - ⇒ Develop draft interface templates for national and regional levels.
        - ⇒ Develop draft search & rescue interface.
        - ⇒ Determine metadata requirements.
        - ⇒ Determine quality assurance/quality control requirements.
        - ⇒ Begin data assembly and aggregation efforts.
    2. Second Quarter:
        - ⇒ Develop and implement new story or stories, as appropriate.
        - ⇒ Modify openioos.org to accommodate new stories and input from regions
        - ⇒ Add new data layers and/or continue working with data providers
        - ⇒ Complete draft national level data assembly and aggregation.
        - ⇒ Complete draft regional data assembly and aggregation.
    3. Third Quarter:
        - ⇒ Develop and implement any new stories
        - ⇒ Work with data providers as appropriate & add data layers
        - ⇒ Solicit feedback from partners
        - ⇒ Modify web site accordingly
        - ⇒ Complete draft national and regional level data products.
        - ⇒ Develop case studies and climatologies.
        - ⇒ Finalize geographic linkages with advisories.
    4. Fourth Quarter
        - ⇒ Develop, implement, add layers, solicit feedback & modify web site
        - ⇒ Complete full products and conduct reviews.
        - ⇒ Develop educational and outreach materials for product.

5. Now what? Where should be go from here and who needs to be involved? Who will take on the various roles and who will provide overall coordination of project? How will communications among the various contributors be handled?

COTS/ONR Metadata Working Group

Background and purpose

At the November 16-17 2004 COTS meeting, a small working group was designated to develop a workplan and two milestones for the next 12 months to enhance metadata development and implementation for the IOOS/COTS Interoperability II demonstration. The Interoperability II demonstration will expand upon the Interoperability I demonstration developed by COTS partners and other IOOS participants (SEACOOS). The Interoperability II demonstration will add surface currents and chlorophyll data to the sea surface temperature and winds data originally in Interoperability I. The Metadata Working Group is to develop a plan to address outstanding issues such as standard vocabulary and metadata content (e.g., fields) to aid in the discovery and use of these data. To be a successful workplan, active participation and feedback from the other COTS working groups and other IOOS data providers is also required.

Milestones

Two major milestones are to be met over the course of this work; one at 6 months, the other at 12 months.

Milestone 1 (6 months)
Version 1 of an IOOS/COTS Data Dictionary with contents reflecting metadata elements required for the automatic discovery, access and use of sea surface temperature, wind, surface current and chlorophyll data.

Milestone 2 (12 months)
Metadata Guidance for IOOS/COTS Data Providers - to include Use Cases which incorporate data dictionary content and the identified metadata elements into the metadata standard(s) used by the Interoperability II demonstration.

Tasks

To accomplish these, the following tasks have been identified: (these can/must be concurrent tasks and also can be broken down into additional subtasks).

Deadline	Task
Jan 15	Identify people who will do the work outlined in this plan.
Feb 1	Identify an existing or new web “workspace” for this effort and for publication of interim and final guidance.
Feb 15	Identify the metadata elements required for the automatic discovery, access and use of sea surface temperature, wind, surface current and chlorophyll data.

Potential data sets and collection methods:

Sea surface temperature	Satellite In situ (e.g., CTD casts, moored CTD)
Winds	Satellite In situ
Surface currents	HF radar Satellite In situ (e.g., ADCP)
Chlorophyll	Satellite In situ

The method of data collection on a specific variable may affect the metadata fields necessary to describe the data set. It may be necessary to have different metadata fields to describe a sea surface temperature dataset, for example, depending on the data collection method used.

Feb 15 — Identify and draw from existing marine science/earth science data dictionary efforts to identify applicable/related data dictionary content from the COTS programs as a basis for the development of an IOOS/COTS Data Thesaurus. The development of this thesaurus will be accomplished in such a way as to facilitate future interoperation between different data dictionaries. Specifically, the thesaurus will include hierarchical and synonym information for each term entry and identify the source of the related terms. The thesaurus will be implemented on the client slide of the IOOS Interoperability Demonstration. The thesaurus will be versioned and each version archived.

A data dictionary should include the metadata elements necessary to describe the data sets and provide at a minimum the name, abbreviation (label), definition, units, and scope the domain and/or range of values, category, data type (measurement actual/derived, model, attribute, etc.) and source.

Feb 15 — Establish subgroups of domain experts relevant to the four kinds of data (sea surface temperature, ocean currents, winds, and chlorophyll) to evaluate existing and necessary data dictionary fields and metadata elements and further develop data dictionary and thesaurus content.

Mar 1 — Complete structure (fields) of data dictionary and thesaurus.

Apr 1 — Complete Draft Content of data dictionary and thesaurus (version 1).

May 1 — Complete Final Content of Data Dictionary and Thesaurus (version 1).

	The metadata requirements may change throughout the course of IOOS. Any modifications will be incorporated in future versions of the data dictionary.
Jun 30	*Milestone 1 completed.*
Aug 1	Develop "how to" guidance for incorporating metadata elements and data dictionary and thesaurus content into standard metadata. This may require developing a COTS extension to the FGDC metadata standard and/or defining a "standard" format for metadata content in NetCDF files. If an extension to the FGDC metadata format is developed, the working group will communicate with FGDC about possible formalization in the future.
Sept 1	Publish guidance to the web.
Oct 1	Develop examples ("Use Cases") in which the data dictionary content and the identified metadata elements are applied to metadata standard(s) used by the Interoperability II demonstration. These examples should take into account the variety of forms by which metadata is currently captured (e.g., NetCDF – including the SEACOOS CDL, flat file "headers," SensorML, FGDC, etc.) by COTS participants and the "cross walking" of information between these metadata forms. Training sessions may need to be developed for the examples.
Dec 1 (or date of demo)	Metadata available to Interoperability II demo with elements and format.
Dec 30	Metadata section of a “how to” guide describing the process to be used throughout this year. The guide will specifically address how to add new parameters to the Interoperability II Demonstration.
Dec 31	*Milestone 2 completed.*

Additional and Future Considerations

Throughout the year, the metadata working group should coordinate with the demonstration, QA/QC, and data assembly working groups.

The team should leverage work already accomplished or in development such as the Marine Metadata Initiative and SEACOOS/Caro-COOPS.

Additional metadata tools may need to be developed to include functions such as automated access to data dictionaries.

Metadata Working Group Members

Anne Ball, NOAA Coastal Services Center
Rob Bochonek, Exxon Valdez Trustee
Julie Bosch, NOAA National Coastal Data Development Center
Matt Howard, Texas A&M University
Dwayne Porter, University of South Carolina
Stephanie Watson, Central and Northern California Ocean Observing System (CeNCOOS)

COTS/ONR QA/QC Working Group

A. The charge for this group is to develop a plan (or set of recommendations) to come up with common approaches and processes to ensure data integrity and quality.

- ⇒ Provide guidelines for quality assurance (QA) and quality control (QC) for the primary parameters as designated in the Goals proposal: waves, wind, surface currents, sea surface temperature & chlorophyll.
- ⇒ Build on the framework of QA & QC as proposed by QARTOD (the Quality Assurance of Real-Time Ocean Data group started in Dec 2003).
- ⇒ Complete the QA/QC guidelines in a 6 to 12 month timeframe.

B. Concept recommendations include:

- ⇒ Assure that the national level demonstration, including the real-time primary parameters, meets the pre-defined QA/QC specifications.
- ⇒ Assure that links to any advisories (for HABs, Toxic Releases, Spills, or other "event-based" scenarios) meet the standards for QA/QC.
- ⇒ Assure that the regional level demonstrations, highlighting the use of primary parameters (one or more) in combination with other regional data to address episodic event scenarios meet the QA/QC specifications. The regional themes will follow those designated in the GOALS Proposal:

    a. Hurricanes in the Southeast (volunteered by SECOORA)
    b. Rip Currents in the Mid-Atlantic?
    c. Nor'easters or Spring Blooms (volunteered by GOMOOS)
    d. Ice Hazards in the Great Lakes?
    e. Coastal Storms in Alaska?
    f. Tsunamis in the Northwest (volunteered by NANOOS)
    g. Beach Closures in California (volunteered by SCCOOS)
    h. Oil Spills in the Gulf of Mexico (volunteered by GCOOS)

- ⇒ Assure that the case studies of past events and/or climatologies for the regional themes meet the required QA/QC specifications.

C. Timeline:

1. First Quarter: Determine quality assurance/quality control specifications.
    - ⇒ Be informed of primary parameters utilized from each regional group. In accordance with QARTOD, d**evelop and publish guidelines for each specific parameter utilized (waves, surface currents, wind, sea surface temperatures or chlorophyll).**
    - ⇒ Assure official advisory providers meet the QA/QC specifications.
    - ⇒ Work with the metadata group to assure consistency and integration of QA/QC specifications.
2. Second Quarter:

⇒ Work with data assembly and aggregation group, at the regional and national level, to assure QA/QC specifications.

3. Third Quarter:
   ⇒ Complete QA/QC of national and regional level data products.
   ⇒ Assure integrity of case studies and climatologies.
   ⇒ Assure integrity of geographic linkages with advisories.
4. Fourth Quarter
   ⇒ Participate in reviews of full product.

D. QA recommendations/specifications for real-time data (to be expanded upon after the QARTOD II meeting):

⇒ Sensors are required to be calibrated and verified prior to deployment.
⇒ The level of accuracy and associated expected error bounds should be defined.
⇒ Establish and report their post-calibration drift tolerance

E. QC recommendations/specifications for real-time data (to be expanded upon after the QARTOD II meeting):

⇒ Assure data continuity and integrity.
⇒ Observations should be subject to a series of automated real-time quality tests.
⇒ A quality flag or descriptor should be added to the data set. The "released" quality controlled data should be accurate. Determine a convention for the quality flag (i.e. 0 = good).
  For instance, in the evolution of quality control, the raw data might have some bad data sections. These sections might be removed for obtaining a "good" data record. Thus, the flags/descriptors will be different depending on the stage of quality control.
⇒ Data analysis techniques should be described and assured that they meet "best practices".

F. All of the above should be described and documented either in the metadata section or through additional documentation.

COTS/ONR Data Assembly and Aggregation Workgroup

Proposed Workplan *February 9, 2005*

Background and purpose

At the November 2004 COTS/ONR workshop, several critical elements were identified that are needed to enable a robust demonstration of an OpenIOOS system. Data discovery, assembly, and aggregation were some of those enabling technologies. The ability to transport data types of different dimensionality (see below) is an integral part of the data assembly and aggregation process, so data transport issues are also considered.

This working group was tasked with coming up with six month and one year milestones that would support the Nowcast system, which was undefined at the time. A draft OpenIOOS demonstration system has now been defined. Among several recommendations, it calls for a

> "National level demonstration to include primary parameters that should be available in some form across the regions. The group recommends **winds, waves, sea surface temperature, surface currents, and chlorophyll**. The data should be served in an Open Geospatial Consortium (OGC) compliant manner.
>
> …It is also recommended that, if possible, some basic climatology information be available to provide viewers with variability reference."

The data assembly and aggregation working group developed milestones to support this recommendation of the OpenIOOS demonstration working group.

Definitions

For the purposes of this document, we use the following working definitions:

Data Discovery: Finding out what data sets are available and their source. This is a necessary step to being able to assemble the data. It will rely heavily on the work being done by the Metadata working group, particularly with the production of a Data Dictionary.

Data Assembly: Bringing data from different sources together: transporting different types of data from various sources to a common location/display via a common interface. The act of data assembly does not imply developing a common archive, or data source, rather, it implies developing the capability to reach data at different data sources from a common interface. Data assembly is most frequently an IT challenge, rather than an oceanographic one.

Data Aggregation: Putting the assembled data into a consistent spatial and temporal framework. This could include such techniques as subsampling, interpolation, and statistical aggregation, *e.g.*, creating daily averages of hourly samples. At its simplest, data aggregation should allow one to subset different data sets based on a consistent time period and area of interest. At a more complex level, the activity should include manipulation of observations to ensure that they represent the same quantity, *e.g.*, producing an accurate, consistent wind field by combining 10-m mast winds, scatterometry winds, and buoy winds; defining and creating a sea surface temperature field from satellite-observed skin temperatures, buoy observations at different locations and depths, and temperature profiles from XBTs or AUVs. Data aggregation is generally a scientific challenge, as opposed to an IT challenge.

Milestones

Six months:

1. Identify the current best practices being used for data discovery, data assembly, and data aggregation. This identification would be done for practices of national and international groups as well as for the different IOOS regions and would include
    a. Current best practices,
    b. Anticipated needs, and
    c. Lessons learned (*i.e.*, approaches that have been tried that didn't work).
2. Identify backbone aggregation activities that need to be done (such as combining SST from NDBC buoys and NOS tide gauges, or such as the aggregation of coastal meteorological observations from local mesonets).
3. Inform regional associations as to whether (and on what timeline) these are being addressed at the national level.

One year:

1. Implement some of the best practices to provide consistent sets of data across regions. These data sets would be used to produce the national OpenIOOS demonstration.
2. Where no currently acceptable guidelines exist for aggregating different types of data, make recommendations to develop them.
3. Regionally tuned displays of different national aggregation efforts could be effectively ported to regional users.

Tasks and Timeline

Target Date	**Task**
March 1	Identify members of the Data Assembly **Implementation** Team. These are the folks who will do the work. There may be smaller sub-teams for data assembly and for data aggregation.
March 15	Inventory other national and international efforts (GODAE, NASA, NOAA/NWS, etc.) to see what methods are being used. The inventory should include contact information and, when possible, sources of any tools/code that can be shared.
March 31	Inventory efforts within regional associations. Work through the Regional Associations. Again, the inventory should include contact information and, when possible, sources of any tools/code that can be shared.
March 31	Working in coordination with the Metadata Working Group, identify and acquire metadata query and data assembly tools and techniques.
April 1	Acquire draft Data Dictionary from the Metadata group.
April 15	Based on definitions in the draft Data Dictionary, determine what the target data aggregation products should be, *e.g.*, in defining SST, what depth does that correspond to?

April 30 Identify the best data aggregation solutions for different data sets.

May 31 Report best practices, including making recommendations for where additional work is needed. This report will include activities at both national and regional levels.

Milestone 1 complete

May 31 Prioritize the order in which the five variables (winds, waves, sea surface temperature, surface currents, and chlorophyll) to be aggregated will be addressed. The prioritization will consider the availability of data streams and of techniques to aggregate the data.

June 15 In collaboration with the Metadata Working Group, implement metadata query and retrieval tools that meet our data aggregation needs.

July 1 Begin testing data assembly tools and techniques

July 15 Begin testing data aggregation tools and techniques. As different data streams and aggregation techniques from our prioritized list become ready for testing, move on to test them.

Aug. 15 Begin producing "operational" versions of aggregated variables, which will become available to the OpenIOOS web site. These will be produced in the prioritized order.

Sept. 30 Complete aggregation of some of the possible data streams for all of the desired data types.

Milestone 2 complete

COTS/ONR Common Interface Working Group

*Common Interface Needs***:** Move to a consistent web presentation at the national, regional and local levels. The present situation has each observing activity with different web site formats, etc. that creates no "IOOS brand recognition" and confuses the user from site to site. One question raised at the ONR/COTS workshop was "Where does commonality end and regional specificity start? Some regions will have different data types, sharing methods, etc"

Common Interface Working group Charge: The Common Interface Working Group is to develop a plan for providing a consistent presentation for the IOD II and accessing data in national and regional views. This group will need to address the regional and local issues identified by the Demonstration Goal Focus group.

Background:
At the November 16-17 2004 COTS meeting, a small working group was designated to develop a workplan and two milestones for the next 12 months to develop a plan for providing a consistent presentation for the IOOS/COTS Interoperability II demonstration. The Interoperability II demonstration will expand upon the Interoperability I demonstration developed by COTS partners and other IOOS participants (SEACOOS) and will add surface currents and chlorophyll data to the sea surface temperature and winds data originally in IOD I. The Common Interface Working Group is to develop a plan to address outstanding issues such as IOOS brand recognition, national commonality with regional specificity (e.g. user needs and data types), and target user groups and participating partner groups. To be a successful workplan, coordination is required with the Demonstration Goal workgroup and feedback from the other COTS working groups and other IOOS data providers is also required.

Issues:

- Need to address the regional and local issues identified by the Demonstration Goal Focus group
- Move to a consistent web presentation at the national, regional and local levels.
- Each observing activity uses different web site formats, etc. that creates no "IOOS brand recognition" and confuses the user from site to site.
- Need to identify key partners and users we are trying to reach—key partners should be included in design from the start where possible
- Key variables and products need to be identified
- Data aggregation ability exists but the interface requires modifications to meet user needs
- Need to determine resources and personnel to develop (and maintain) the interface
- Need to identify appropriate (wide range of perspectives) target groups to "beta test" interface

3-month milestones

- Identify intended audience/user base, e.g. NWS and their users. Complete a needs analysis of the intended user base to determine how the interface should be designed to address the needs of the groups and individuals who will be viewing and downloading the data.

- Determine the minimum list of core variables (i.e., salinity, water temp, air temp, wind speed, wave ht., etc.) that will be available through the interface (initially this will be determined by the IODII or key user/partner).

- Identify a variety of test groups (e.g. ones with and without query-based systems) for interface evaluation (e.g. CMAC, SECOORA identified users)

- Employ a web-designer (or at least identify key personnel to under take this task), appoint a representative design team (including representative from users) and identify and allocate resources for the team to complete task.

6-month milestones

- Conduct a survey of ONR/COTS members to determine the state of their data interface (how data is presented and delivered, what variables are collected, which are displayed) and the expertise available to them to implement the common interface.

- Needs analysis of survey data to determine what attributes the interface should include and how flexible it has to be to address user needs

- Produce a creative brief or project needs document that includes: project summary, audience profile, partner needs, ONR/COTS member needs, design strategy. This document will be the basis of the design effort for the distributed and/or the centralized interface. Distribute this document to COTS members and key partners or users for comment.

9-month milestones

- Based on the creative brief and comments, develop a design document that will act as a set of guidelines from which a designer can produce the interface. This should be done in consultation with other working groups and key users.

- Produce a wireframe (a rough working version or versions) for user testing

- Distribute to identified evaluation groups to begin to assess its effectiveness

- Make modifications to wireframe

12-month milestone

- Employ this framework for the IODII

- Distribute final version to ONR/COTS members and key users

Ongoing Issues:

This workplan still does not directly address if each ONR/COTS program web page should use a common template or to what extent there should be commonalities for finding information (e.g. a common button on each page to get to an IOOS page, a logo, a common menu bar etc…)

How does the IOD II page fit with the developing IOOS page?

Others?

Common Interface Working Group Members

Lynn Leonard, UNCW, CORMP
Mike Durako, UNCW, CORMP
Donna McCaskill, NOAA Coastal Services Center
Dale Robinson, CICORE
Charlton Purvis, University of South Carolina, SEACOOS
Christine Manninen, Great Lakes Commission

COTS/ONR Work Group on IOOS Communications

During the COTS/ONR Workshop (NOV 04), participants identified the need to build upon the previously constructed IOOS Demonstration (openioos.org) to show progress toward interoperability of observations and data. Several "topical areas" were identified that required attention for the successful completion of the IOOS Demo 2. One area identified as a need was the facilitation of communications among participants involved in building the IOOS demonstration.

Charge to Work Group:
The COTS/ONR Work Group on IOOS Communications is charged with facilitating effective communications among IOOS Demo work groups, Regional Associations, and COTS/ONR projects to ensure a coordinated effort is applied toward constructing an IOOS Demonstration that builds on the OpenIOOS.org demo constructed last year and has significant impact as a demonstration tool and regional focus. The Communications work group will develop milestones for establishing a communication network to facilitate such a coordinated effort.

In addition, the work group acknowledged that improved communications are needed beyond the immediate goal of developing an IOOS 2 Demonstration. To this end, the work group will also make recommendations for effective mechanisms of communication between and among NOAA COTS and ONR ocean observing projects, COTS work groups, emerging IOOS Regional Associations, Ocean.US, (the future) NFRA, U.S. GOOS Steering Committee, and the technical oceanographic community. Specifically, the Work Group will develop a work plan to help accomplish the following:

- Establish a communications network (among work groups, RAs, COTS and ONR projects, Ocean.US, and CSC) that facilitates a coordinated approach to development of an effective IOOS demonstration that allows data access and a regional focus.
- Recommend roles and responsibilities for distributing information between and among the various entities involved in developing an Integrated Ocean Observing System (e.g., Ocean.US, CSC - COTS projects, RAs, US GOOS Steering Committee, NFRA, Federal agencies) according to an agreed upon organizational chart.
- Identify mechanisms for determining the contact person within each group that has the responsibility to distribute information appropriately – (e.g. by providing contact information, web space, newsletter articles), as well as the appropriate list of those who should receive information.
- Recommend specific tools to improve communication, coordination and collaboration, and identify the mechanisms by which these tools can be implemented. (e.g., web page, xtra net, wiki, list serves, newsletters, and workshops).

Levels of Coordination Considered
The work group considered multiple levels of coordination:

The *global ocean observing system* (GOOS) focuses on the coordinated development of a

permanent international system for observations, modeling, and analysis of coastal and open-ocean variables needed to support operational ocean services worldwide. Although this plan does not address this system, it should be noted that the IOOS Regional observing systems and associations are being described as the U.S. coastal-GOOS (C-GOOS) program. As such, the RAs (and RCOOSs) would benefit from more dialogue with the GOOS Program.

The *national Integrated Ocean Observing System (IOOS)* consists of two programs: an integrated national backbone of federal observing assets and a set of regional observing systems. The IOOS national backbone consists of federal observing assets as described in the IOOS Implementation Plan integrated to serve data and information products to benefit users. The backbone must be tightly coordinated with the Regional Observing Systems and also with the research and development programs of the various federal ocean agencies, and especially the National Science Foundation's Ocean Observatory Initiative (OOI).

The *regional associations* focus on engaging users from the private sector, NGOs, state agencies, regional organizations of federal agencies, tribes, and academic institutions in the design and implementation of Regional Coastal Ocean Observing Systems (RCOOSs) that are tailored to meet the user needs of a particular region.

The *IOOS Demonstration 2* involves a partnership among the NOAA CSC and a variety of ocean observing programs around the country. These groups have worked together over the past year to implement scalable and interoperable solutions based on available data standards. The primary accomplishment is the creation of a website that demonstrates interoperability using open GIS consortium (OGC) standards (http://www.openioos.org/). The site has recently been updated with a new "hurricane version" of the demo. The components of the next IOOS demonstration are being addressed by several work groups.

Key Issues and Groups

To be successful, both the national and regional components of the IOOS system require communication and exchange of information among and between these broadly defined groups:

(1) IOOS designers concerned with issues that include user requirements;
(2) Those whose science and R&D activities produce IOOS products (models, maps, etc.);
(3) Groups involved in issues of technology transfer (e.g., data integration, interfaces, security, archiving, visualization, sensor development, etc.);
(4) All types of user groups including the research community;
(5) The public that will benefit from an increased awareness of ocean events (the coastal channel) and the education and outreach components of IOOS;
(6) Federal agencies responsible for funding, expanding, and ultimately operating the ocean observing system;
(7) Those who will create synergy between the operational elements and the research enterprise in its broadest sense (i.e., basic and applied);
(8) The various entities responsible for overseeing, facilitating, managing, governing, and advising the developing IOOS.

Approach

It is recognized that coordinating the required IOOS entities, data streams, data management activities, and products necessitates exceptional levels of coordination, communication, and collaboration. This will involve creating a catalog of resources, sharing expertise, and defining roles, responsibilities and resources.

Milestones:

Within 1 Month

1. Form a steering committee to guide intra- and inter-work group coordination to help ensure successful IOOS demonstration of COTS/ONR data integration.
2. Hold session at Feb. 16-17 RA meeting to inform RA folks of goals and progress of workgroups and hold broader discussion of communication needs to further IOOS goals.
3. Agree to an organizational chart for communication purposes to clarify immediate responsibilities.
4. Explore with Demo work groups the most useful methods of communication.

Within 2-6 months

1. Identify key individuals/organizations within the broadly define groups above that can serve as contacts for distributing information and engaging in dialogue to improve communications.
2. Obtain the contact lists for each of the organizations.
3. Foster communication among the RA's to facilitate their ability to work together to form a cohesive communication front.
4. Devise a standard format (template) for all RAs to work with – in conjunction with the Common Interface Work Group - so that all documents and materials are similar (e.g. a brand or logo to identify them as a part of IOOS).
5. Identify key communication gaps (content and lines of communication) and develop re commendations to fill those gaps.

    **This can occur within 3 months for the RA, COTS partners, Ocean.US and DMAC and within 12 months between agencies